



PATENT

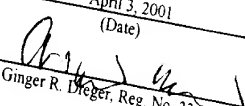
Case Docket No. UC053.001A
Date: April 3, 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Saxon et al.
Appl. No. : 09/770,169
Filed : January 26, 2001
For : IMMUNOGLOBULIN
CLASS SWITCH
RECOMBINATION
Examiner : Unknown
Group Art Unit : Unknown

I hereby certify that this correspondence and all
marked attachments are being deposited with the
United States Postal Service as first class mail in
an envelope addressed to: Assistant Commissioner
for Patents, Washington, D.C. 20231, on

April 3, 2001
(Date)


Ginger R. Dreger, Reg. No. 33,055

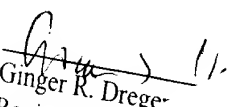
TRANSMITTAL LETTER

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231
ATTENTION: APPLICATION BRANCH

Dear Sir:

Enclosed for filing in the above-identified application are:

- (X) An Information Disclosure Statement.
- (X) A PTO Form 1449 with 61 references.
- (X) The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No. 11-1410. A duplicate copy of this sheet is enclosed.
- (X) Return prepaid postcard.


Ginger R. Dreger
Registration
Attorney

UC053.001A



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Saxon et al.) Group Art Unit Unknown
App. No. : 09/770,169)
Filed : January 26, 2001)
For : IMMUNOGLOBULIN CLASS)
SWITCH RECOMBINATION)
Examiner : Unknown)

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Enclosed is a form PTO-1449 listing references that are also enclosed. This Information Disclosure Statement is being filed within three months of the filing date of this application, and no fee is required in accordance with 37 C.F.R. § 1.97(b)(1).

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: April 13, 2001

By: Ginger R. Dreger
Ginger R. Dreger
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FORM PTO-1449

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
UC053 001AAPPLICATION NO.
09/770,169INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(USE SEVERAL SHEETS IF NECESSARY)

APPLICANT
Saxon et alFILING DATE
January 26, 2001GROUP
Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

EXAMINER
INITIAL

OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

	1	Aruffo et al., "The CD40 Ligand, gp39, is Defective in Activated T Cells from patients with X-Linked Hyper-IgM Syndrome" <u>Cell</u> 72:291-300 (1993)
	2	Ballantyne et al., "Antibody class Switch recombinase activity is B cell stage specific and functions stochastically in the absence of 'targeted accessibility' control" <u>Int. Immunol.</u> 7:963-974 (1997)
	3	Borggreve et al., "A B-cell-specific DNA Recombination Complex" <u>J. Biol. Chem.</u> 273:17025-17035 (1998)
	4	Bottaro et al., "S region transcription per se promotes basal IgE class switch recombination but additional factors regulate the efficiency of the process" <u>EMBO J.</u> 13:665-674 (1994)
	5	Casellas et al., "Ku80 is required for immunoglobulin isotype switching" <u>EMBO J.</u> 17:24-4-2411 (1998)
	6	Cherry and Baltimore, "Chromatin remodeling directly activates V(D)J recombination" <u>Proc. Natl. Acad. Sci. USA</u> 96:10788-10793 (1999)
	7	Coffman et al., "Mechanism and Regulation of Immunoglobulin Isotype Switching" <u>Adv. Immunol.</u> 54:229-270 (1993)
	8	Cogne et al., "A Class Switch Control Region at the 3' End of the Immunoglobulin Heavy Chain Locus" <u>Cell</u> 77:737-747 (1994)
	9	Daniels and Lieber, "RNA:DNA complex formation upon transcription of immunoglobulin switch regions: implications for the mechanism and regulation of class switch recombination" <u>Nucleic Acids Res.</u> 23:5006-5011 (1995)

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*EXAMINER: INITIAL IF CITATION CONSIDERED. WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP 609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

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- | | |
|----|---|
| 10 | Daniels and Lieber, "Strand specificity in the transcriptional targeting of recombination at immunoglobulin switch sequences" <u>Proc. Natl. Acad. Sci. USA</u> 92:5625-569 (1995) |
| 11 | Dunnick et al., "DNA sequences at immunoglobulin switch region recombination sites" <u>Nucleic Acids Res.</u> 21:365-372 (1993) |
| 13 | Esser and Radbruch, "Immunoglobulin Class Switching: Molecular and Cellular Analysis" <u>Annu. Rev. Immunol.</u> 8:717-735 (1990) |
| 14 | Gauchat et al., "Structure and Expression of Germline ϵ Transcripts in Human B Cells Induced by Interleukin 4 to Switch to IgE Production" <u>J. Exp. Med.</u> 172:463-473 (1990) |
| 15 | Gritzmacher, "Molecular Aspects of Heavy-Chain Class Switching" <u>Crit. Rev. Immunol.</u> 9:173-299 (1989) |
| 16 | Harriman et al., "Immunoglobulin Class Switch Recombination" <u>Annu. Rev. Immunol.</u> 11:361-384 (1993) |
| 17 | Harriman et al., "IgA Class Switch in Ia Exon-deficient Mice" <u>J. Clin. Invest.</u> 97:477-487 (1996) |
| 18 | Hu et al., "Regulation of Germline Promoters by the Two Human Ig Heavy Chain 3' α Enhancers" <u>J. Immunol.</u> 164:6380-6386 (2000) |
| 19 | Jack et al., "Looping out and Deletion Mechanism for the Immunoglobulin Heavy-Chain Class Switch" <u>Proc. Natl. Acad. Sci. USA</u> 85:1581-1585 (1988) |
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| 21 | Kawabe et al., "The Immune Responses in CD40-Deficient Mice: Impaired Immunoglobulin Class Switching and Germinal Center Formation" <u>Immunity</u> 1:167-178 (1994) |
| 22 | Kinoshita et al., "Target Specificity of Immunoglobulin Class Switch Recombination Is Not Determined by Nucleotide Sequences of S Regions" <u>Immunity</u> 9:849-858 (1998) |
| 23 | Laffan and Luzzatto, "Anomalous Rearrangements of the Immunoglobulin Heavy Chain Genes in human Leukemias Support the Loop-out Mechanism of Class Switch" <u>J. Clin. Invest.</u> 90:2299-2307 (1992) |
| 24 | Leung and Maizels, "Regulation and Targeting of Recombination in Extrachromosomal Substrates Carrying Immunoglobulin Switch Region Sequences" <u>Mol. Cell. Biol.</u> 14(2):1450-1458 (1994) |
| 25 | Leung and Maizels, "Transcriptional regulatory elements stimulate recombination in extrachromosomal substrates carrying immunoglobulin switch-region sequences" <u>Proc. Natl. Acad. Sci. USA</u> 89:4154-4158 (1992) |
| 26 | Li et al., "Developmental Specificity of Immunoglobulin Heavy Chain Switch Region Recombination Activities" <u>Mol. Immunol.</u> 34:201-208 (1997) |

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (USE SEVERAL SHEETS IF NECESSARY)	APPLICANT Saxon et al	
	FILING DATE January 26, 2001	GROUP Unknown

EXAMINER INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)
27	Liu et al., "Within Germinal Centers, Isotype Switching of Immunoglobulin Genes Occurs after the Onset of Somatic Mutation" <u>Immunity</u> 4:241-250 (1996)
28	Lopez et al., "Promotion of double-strand break repair by human nuclear extracts preferentially involves recombination with intact homologous DNA" <u>Nucleic Acids Res.</u> 15:6813-6826 (1987)
29	Lopez et al., "Directional recombination is initiated at a double strand break in human nuclear extracts" <u>Nucleic Acids Res.</u> 20:501-506 (1992)
30	Lorenz et al., "Switch Transcripts in Immunoglobulin Class Switching" <u>Science</u> 267:1825-1828 (1995)
31	Manis et al., "Ku70 Is Required for Late B Cell Development and Immunoglobulin Heavy Chain Class Switching" <u>J. Exp. Med.</u> 187:2081-2088 (1998)
32	Marcu et al., "A model for the molecular requirements of immunoglobulin heavy chain class switching" <u>Nature</u> 298:87-89 (1982)
33	Matsuoka et al., "Switch Circular DNA Formed in Cytokine-Treated Mouse Splenocytes: Evidence for Intramolecular DNA Deletion in Immunoglobulin Class Switching" <u>Cell</u> 62:135-144 (1990)
34	Mills et al., "Human Ig S γ Regions and Their Participation in Sequential Switching to IgE" <u>J. Immunol.</u> 155:3021-3036 (1995)
35	Mills et al., "Sequences of human immunoglobulin switch regions: implications for recombination and transcription" <u>Nucleic Acids Res.</u> 18:7305-7316 (1990)
36	Nikaido et al., "Switch region of immunoglobulin C μ gene is composed of simple tandem repetitive sequences" <u>Nature</u> 292:845-848 (1981)
37	Ott et al., "Immunoglobulin heavy chain switch region recombination within a retrieval vector in murine pre-B cells" <u>EMBO J.</u> 6:577-587 (1987)
38	Pan et al., "Regulation of the promoter for human immunoglobulin γ 3 germ-line transcription and its interaction with the 3' α enhancer" <u>Eur. J. Immunol.</u> 30:1019-1029 (2000)
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41	Rabbitts et al., "Transcription enhancer identified near the human C μ immunoglobulin heavy chain gene is unavailable to the translocated c-myc gene in a Burkitt lymphoma" <u>Nature</u> 306:806-809 (1983)

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EXAMINER INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)
42	Rolink et al., "The SCID but Not the RAG-2 Gene Product Is Required for S μ -S ϵ Heavy Chain Class Switching" <u>Immunity</u> 5:319-330 (1996)
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46	Stavnezer et al., "Switch Recombination in a Transfected Plasmid Occurs Preferentially in a B Cell Line That Undergoes Switch Recombination of Its Chromosomal Ig Heavy Chain Genes" <u>J. Immunol.</u> 163:2028-2040 (1999)
47	Stavnezer et al., "Immunoglobulin heavy-chain switching may be directed by prior induction of transcripts from constant-region genes" <u>Proc. Natl. Acad. Sci. USA</u> 85:7704-7708 (1988)
48	Stavnezer, J., "Antibody Class Switching" <u>Adv. Immunol.</u> 61:79-90 (1996)
49	Stavnezer-Nordgren and Sirlin, "Specificity of immunoglobulin heavy chain switch correlates with activity of germline heavy chain genes prior to switching" <u>EMBO J.</u> 5:95-102 (1986)
50	Takahashi et al., "Structure of Human Immunoglobulin Gamma Genes: Implications for Evolution of a Gene Family" <u>Cell</u> 29:671-679 (1982)
51	Thacker et al., "A mechanism for deletion formation in DNA by human cell extracts: the involvement of short sequence repeats" <u>Nucleic Acids Res.</u> 20:6183-6199 (1992)
52	Tsukamoto et al., "Silencing factors participate in DNA repair and recombination in <i>Saccharomyces cerevisiae</i> " <u>Nature</u> 388:900-903 (1997)
53	Von Schwedler et al., "Circular DNA is a product of the immunoglobulin class switch rearrangement" <u>Nature</u> 345:452-455 (1990)
54	Xu et al., "Mice Deficient for the CD40 Ligand" <u>Immunity</u> 1:423-431 (1994)
55	Xu et al., "Replacement of germ-line ϵ promoter by gene targeting alters control of immunoglobulin heavy chain class switching" <u>Proc. Natl. Acad. Sci. USA</u> 90:3705-3709 (1993)
56	Zelazowski et al., "Regulation of Ku Expression in Normal Murine B Cells by Stimuli That Promote Switch Recombination" <u>J. Immunol.</u> 159:2559-2562 (1997)
57	Zhang and Cheah, "Cell-Free Recombination of Immunoglobulin Switch-Region DNA with Nuclear Extracts" <u>Clin. Immunol.</u> 94:140-151 (2000)
58	Zhang et al., "A selective defect in IgG2b switching as a result targeted mutation of the I γ 2b promoter and exon" <u>EMBO J.</u> 12:3529-3537 (1993)

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59	Zhang et al., "Switch Circles from IL-4-Directed ϵ Class Switching from Human B Lymphocytes" <i>J. Immunol.</i> 152:3427-3435 (1994)	
60	Zhang et al., "Secondary Deletional Recombination of Rearranged Switch Region in Ig Isotype-Switched B Cells" <i>J. Immunol.</i> 154:2237-2247 (1995)	
61	Zhang et al., <i>Regulation of class switch recombination of the immunoglobulin heavy chain genes.</i> In: <i>Immunoglobulin Genes</i> , Second Edition, T. Honjo and F.W. Alt, eds.(1995), pp 235-265	

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